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Capacity-building, education and public awareness, science and transfer of environmentally sound technology

Report of the Secretary-General

Addendum

Education, public awareness and training*

(Chapter 36 of Agenda 21)

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I. Introduction

1. The present report consists of extracts from the report entitled "Educating for a sustainable future: a transdisciplinary vision for concerted action",[1] which was prepared by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as a contribution to the work programme of the Commission on Sustainable Development, which called upon UNESCO to refine the concept and key messages of education for sustainable development.[2] The document is to be seen as the beginning of a process, as an attempt to stimulate discussion and as an action-oriented paper. It reflects the new vision of education as a means to achieving a sustainable future.

II. Education: the force of the future

2. It is widely agreed that education is the most effective means that society possesses for confronting the challenges of the future and for shaping the world of tomorrow. Access to education is the sine qua non for effective participation in the life of the modern world at all levels.

3. Education must not be equated with schooling or formal education alone. It includes non-formal and informal modes of instruction and learning as well, including traditional learning acquired in the home and community. By defining education broadly, one also widens the community of educators, as the programme statement of *Education 21* promoted within the United Kingdom notes, to include teachers, lecturers, curriculum developers, administrators, support staff, industrial trainers, countryside rangers and staff, environmental health and planning officers, education officers with non-governmental organizations (NGOs), community educators, youth leaders, parent association members, media people, representatives of learners in all contexts – and yet more. One might further widen this community to include all those, whatever their role in society, who perceive a need or duty to inform and educate people regarding the requirements of a sustainable future. International organizations, government departments and institutions, foundations and many others are deeply involved in education in the broad sense of the term used here. Many firms in the private sector also see the need to play their part in promoting awareness and are doing so in innovative ways: for example, through sponsoring the publication of articles in newspapers and journals exploring environmental and social issues. This vast community of educators represents an enormously potent, but largely untapped human resource for sustainable development that can be invaluable in a range of contexts as well as education. It represents, above all, a means for bringing the struggle for sustainable development into communities and local institutions around the world, which, in the final analysis, is where the cause of sustainable development will either triumph or fail.

4. Education serves society in a variety of ways. The goal of education is to make people wiser, more knowledgeable, better informed, ethical, responsible, critical and capable of continuing to learn, and more productive and creative in the workplace. Were all people to possess such abilities and qualities, the world's problems would not be automatically solved, but the means and the will to address them would be at hand. Education also serves society by providing a critical reflection on the world, especially its failings and injustices, and by promoting greater consciousness and awareness, exploring new visions and concepts, and inventing new techniques and tools. Education is also the means for disseminating knowledge and developing skills, for bringing about desired changes in behaviours, values and lifestyles, and for promoting public support for the continuing and fundamental changes that will be required if humanity is to alter its course, leaving the familiar path that is leading towards growing difficulties and possible catastrophe, and starting the uphill climb towards sustainability. Education, in short, is humanity's best hope and most effective means in the quest to achieve sustainable development.

III. Public awareness and understanding: the fuel for change

5. Public awareness and understanding are, at once, consequences of education and influences on the educational process. A public well informed of the need for sustainable development will insist that public educational institutions include in their curricula the scientific and other subject matters needed to enable people to participate effectively in the numerous activities directed towards achieving sustainable development. Common information and shared understandings are therefore important not only for mobilizing public support, but also for carrying out consultative work and participatory approaches in all fields.

6. An approach that emphasizes local issues, rather than global ones, is often more effective in promoting public interest and understanding. This may account, in part, for the success of non-formal community education and local environmental communication programmes in reaching and sensitizing people to environmental and development issues in both developing and industrialized countries. A particular

benefit of such programmes is that they are often directly linked to action to control or solve the problems identified.

IV. The need for effective communication

7. One of the lessons of recent experience is the need to establish effective communication strategies as an integral part of any major scientific inquiry or programme. Communication has to be seen as a long-term interactive process strategically aimed at particular groups and audiences, not as a concluding message when a project or panel is about to present its final report and wind up its activities. It is not necessary – or even desirable – for scientists to become propagandists, but it is essential that studies conducted in the public interest have adequate means to communicate their findings to the public on whose behalf they were carried out.

V. Confronting vested interests

8. Until quite recently, advocates of the common interest have had difficulty mustering the needed public relations expertise and support to overcome the influence of vested interests. Fortunately, in the past two decades, many lessons have been learned, especially by environmentalists, on how to convert a growing public concern for the state of the Earth into effective support for specific measures to address concrete problems. Yet, in most countries, while environmental issues are now receiving greater support, measures aimed at promoting population policies, social development, poverty reduction and other necessary measures for achieving sustainable patterns of development continue to be largely ignored by the general public. Ultimately, though, there can be no solution to environmental problems unless the social and economic ills besetting humankind are seriously addressed. It is this broader message and reality which remains to be effectively communicated to and internalized by the public. A vigilant and informed world public represents a powerful counterweight to the vested interests that appear, at present, to have the upper hand on many issues.

VI. Complex messages

9. The messages of sustainable development represent a challenge in and of themselves. Rather than being simple and unambiguous – thus easy to communicate – environmental and developmental issues tend to be complex. This is so because of the inherent complexity of ecological and human systems. They defy simplistic explanations, solutions and predictions. Complex realities are difficult to communicate in simple messages. Yet, attempts to simplify what, by its very nature is not simple, may result in further confusion and misunderstandings and, ultimately, in lack of credibility.

10. The same problems arise, although to a lesser degree, in dealing with major transformations such as population growth and urbanization. People have difficulty adjusting from the scale of things encountered in everyday life to the scales of magnitude – enormously large and infinitesimally small – needed to understand demographic or ecological phenomena. Ultimately, a solution can be found only by educating the public in the developmental and environmental "facts of life". Indeed, in the twenty-first century, the literacies of science, ecology and development will be as essential to comprehending the world as were the traditional skills of reading and writing at the start of the present century.

11. In the meantime, it will be important for those advocating sustainable development to choose, wherever possible, those cases and examples that are most easily understood by the general public. The basic dictum of pedagogy is to begin where the learner is. This is also good advice for the communication specialist. Start with problems that people feel and understand at the local level. That is both valuable knowledge in itself and, if need be, a basis for moving on to more complex and global understandings.

VII. The messengers

12. Emotionalism and exaggeration are another frequent source of difficulty. The press is understandably drawn to those with the most extreme views. Disagreements and conflicting views between specialists are also "newsworthy" and are skilfully exploited. More moderate and reasoned voices often go unheard in the din. Extreme positions, while they may be useful in catching the public s attention and alerting it to pending dangers, make it difficult to move from declarations and debate into action.

13. It has to be recognized that neither individuals nor societies are ready or even able to change their habits and behaviours from one day to the next. Proposals for change, if they are to be effective, have to be feasible. Both the messages and the messengers have to appear credible and

responsible. Alarmist predictions that make it seem that the world is about to end are evidently not conducive to the long-term planning and action that sustainable development requires. On the contrary, it is far more effective to present problems as manageable through responsible conduct and, wherever possible, put forward a realistic solution and a means to take preventive action.

VIII. Reorienting education to support sustainability

14. Reorienting education to sustainability requires recognizing that traditional compartments and categories can no longer remain in isolation from each other and that we must work increasingly at the interface of disciplines in order to address the complex problems of today's world. This is true both within education, where interdisciplinarity is slowly and with difficulty gaining ground, and between the spheres of education, work and leisure as lifelong learning emerges as a key concept for planning and developing educational systems. These changes are not occurring nearly as rapidly as would be desired, but they are nonetheless taking shape within education at all levels.

15. Ultimately, sustainable development will require an education that not only continues throughout life, but is also as broad as life itself, an education that serves all people, draws upon all domains of knowledge and seeks to integrate learning into all of life's major activities. The rapid growth of knowledge has rendered the notion of schooling as a "once and for all" preparation for life utterly obsolete. The growth of knowledge is advancing exponentially, yet not nearly as fast as the need for understanding and solutions at which it is aimed. As concerns sustainable development specifically, it is impossible to predict with reliability what will be the key issues on which people will need information in 5, 10, 20 or 50 years. It is predictable, however, that such developments will not fit neatly into the existing and artificial subdivisions of knowledge that have been in place for more than a century. Hence, understanding and solving complex problems is likely to require intensified cooperation among scientific fields as well as between the pure sciences and the social sciences. Reorienting education to sustainable development will, in short, require important, even dramatic changes, in nearly all areas.

16. In the sections that follow, a number of key issues relating to the role of education in sustainable development will be briefly examined.

IX. Importance of basic education

17. Inherent in the concept of sustainability is the vision of a more equitable world. This can only be achieved by providing the disadvantaged with the means to advance themselves and their families. And of these means, the most essential is education, particularly basic education. Over 100 million children between the ages of 6 and 11 never attend school and tens of millions more enter school only to drop out within a few months or years. Moreover, there are over 800 million illiterate adults, most of whom have never been enrolled in school. The first requirement in the quest for development and equity must be to change this situation and make schooling of quality available to all. But that goal, alas, is still far off. For the present, the challenge is to make the best of an unfortunate and unjust situation.

18. Given the situation today in many developing countries, it does not suffice to orient formal education towards sustainability. Attention also has to be given to those who are at present unserved or poorly served by schools. This is a large group, well over a billion people, and a vital one for the future. Girls and women, the mothers of today and tomorrow, are in the majority. They are, or will be, the first and most influential teachers of their children. The goals of educating young children are focused on ensuring their health, development, happiness, well-being and adjustment to the environment in which they live.

19. Basic education is aimed at all the essential goals of education: learning to know, to do, to be (i.e., to assume one's duties and responsibilities) and to live together with others, as outlined in *Education: the Treasure Within*, the report of the Independent Commission on Education for the Twenty-first Century, published in 1996 by UNESCO.

20. Basic education provides the foundation for all future education and learning. Its goal, as concerns those in the pre-school primary school-age population, whether enrolled in school or not, is to produce children who are happy with themselves and with others, who find learning exciting and develop inquiring minds, who begin to build up a storehouse of knowledge about the world and, more important, an approach to seeking knowledge that they can use and develop throughout their lives. Basic education for adults is aimed at empowerment by enabling people to participate in shaping a sustainable future. Basic education is, thus, not only the foundation for lifelong learning, but also the foundation for sustainable development.

X. Changes required in formal education

21. Education plays a dual role, at once both reproducing certain aspects of current society and preparing students to transform society for the future. These roles are not necessarily mutually exclusive. However, without the commitment of all of society to sustainable development, curricula have tended in the past to reproduce an unsustainable culture with intensified environment and development problems rather than to empower citizens to think and work towards their solution. The role of formal education in building society is to help students to determine what is best to conserve in their cultural, economic and natural heritage and to nurture values and strategies for attaining sustainability in their local communities while contributing at the same time to national and global goals.

A. Curriculum reform

22. To advance such goals, a curriculum reoriented towards sustainability would place the notion of citizenship among its primary objectives. **This would require a revision of many existing curricula and the development of objectives and content themes, and teaching, learning and assessment processes that emphasize moral virtues, ethical motivation and ability to work with others to help build a sustainable future.**

23. **This kind of orientation would require, *inter alia*, increased attention to the humanities and social sciences in the curriculum.** The natural sciences provide important abstract knowledge of the world but, of themselves, do not contribute to the values and attitudes that must be the foundation of sustainable development. Even increased study of ecology is not sufficient to reorient education towards sustainability. Even though ecology has been described by some as the foundation discipline of environmental education, studies of the biophysical and geophysical world are a necessary – but not sufficient – prerequisite to understanding sustainability. The traditional primacy of nature study, and the often apolitical contexts in which it is taught, need to be balanced with the study of social sciences and humanities. Learning about the interactions of ecological processes would then be associated with market forces, cultural values, equitable decision-making, government action and the environmental impacts of human activities in a holistic interdependent manner.

24. **A reaffirmation of the contribution of education to society means that the central goals of education must include helping students learn how to identify elements of unsustainable development that concern them and how to address them.** Students need to learn how to reflect critically on their place in the world and to consider what sustainability means to them and their communities. **They need to practise envisioning alternative ways of achieving development and of living, evaluating alternative visions and more sustainable consumption and production patterns, learning how to negotiate and justify choices between visions, making plans for achieving desired ones, and participating in community life to bring such visions into effect.** These are the skills and abilities which underlie good citizenship, and make education for sustainability part of a process of building an informed, concerned and active populace. In this way, education for sustainability contributes to education for democracy and peace.

B. Structural reform

25. **Reorienting the curriculum towards sustainable development requires at least two major structural reforms in education. The first is to re-examine the centralized mandating of courses and textbooks in order to allow for locally relevant learning programmes.** Local decision-making can be facilitated through the reform of centralized educational policies and curricula, and the formulation of appropriate syllabuses and assessment policies. Nationally endorsed syllabuses can serve as "broad framework documents" that provide aims and general objectives for subjects, an overview of broad content themes, appropriate learning experiences, relevant resource materials, and criteria for assessing student learning. This type of syllabus can provide centralized accountability, while allowing schools, teachers and students to make choices about the specific learning experience, the relative depth and breadth of treatment for different topics, the case studies and educational resources used, and how to assess student achievements.

26. A second major area of structural reform is the development of new ways to assess the processes and outcomes of learning. Such reform should be inspired by what people want from their educational system, as well as what society needs. The period of profound change in which we are living needs to be taken into account by educational systems, which were, for the most part, designed to serve a society that is fast becoming history. Learning needs to be seen as a lifelong process that empowers people to live

useful and productive lives. The reorientation of education along these lines – and in anticipation to the extent possible of future needs – is fundamental for sustainable development, including its ultimate objective not only of human survival but especially of human well-being and happiness. **Similarly, there also needs to be a revamping of the methods of credentialing students. The various ways in which students are judged (testing, report cards, evaluations) and the basis for awarding diplomas at all levels need to reflect the reformulation of outcomes of learning towards sustainability.**

XI. Contribution of environmental education

27. It is clear that the roots of education for sustainable development are firmly planted in environmental education. While environmental education is not the only discipline with a strong role to play in the reorienting process, it is an important ally. In its brief 25-year history, environmental education has steadily striven towards goals and outcomes similar and comparable to those inherent in the concept of sustainability.

28. In the early 1970s, the emerging environmental education movement was given a powerful boost by the United Nations Conference on the Human Environment, held in Stockholm in 1972, which recommended that environmental education be recognized and promoted in all countries. This recommendation led to the launching in 1975 by UNESCO and the United Nations Environment Programme (UNEP) of the International Environmental Education Programme (IEEP), which continued until 1995. The influence of the IEEP – and the national and international activities that it inspired – has been widely felt and is reflected in many of the educational innovations carried out in the last two decades.

29. That work was inspired largely by the guiding principles of environmental education laid down by the Intergovernmental Conference on Environmental Education, held in Tbilisi in 1977. The concepts and vision taken up at the Conference encompass a broad spectrum of environmental, social, ethical, economic and cultural dimensions. Its basic principles were successfully translated into educational goals and, with greater difficulty, into schoolroom practice in many countries. It is therefore not surprising that many recommendations of the United Nations Conference on Environment and Development, held in Rio de Janeiro 15 years later, echo those of Tbilisi.

30. The motto of the environmental education movement has been: "think globally, act locally". Over a period of more than two decades, it developed a highly active pedagogy based on this premise. In the early grades, in particular, the emphasis was upon learning the local environment through field studies and classroom experiments. By starting in the primary grades, before the process of compartmentalization that marks secondary and particularly higher education sets in, students were encouraged to examine environmental issues from different angles and perspectives.

31. The influence of environmental education in promoting interdisciplinary inquiries can be seen at all levels of education. A course on environmental economics, for example, looks to anthropology for insights and source material. Environmental education has also found original ways of looking at and measuring human impact on the environment, such as the "ecological footprint", which estimates the number of acres of land required to sustain individuals according to their lifestyles and patterns of consumption. Innovative work has also been done in the field of environmental health by relating illness to environmental stress and ways of life.

32. In brief, the record of the environmental education movement is one of resourcefulness, innovation and continuing accomplishments. Lessons learned from environmental education provide valuable insight for developing the broader notion of education for sustainable development.

XII. Interdisciplinarity

33. Education for sustainability calls for both interdisciplinary inquiry and action. It does not, of course, imply an end to work within traditional disciplines. A disciplinary focus is often helpful, even necessary, in allowing the depth of inquiry needed for major breakthroughs and discoveries. But increasingly, important discoveries are being made not within disciplines, but on the borders between them. This is particularly true in fields such as environmental studies, which are not easily confined to a single discipline. Despite this realization and a broadening support for interdisciplinary inquiries, the frontiers between academic disciplines remain stoutly defended by professional bodies, career structures and criteria for promotion and advancement. It is no accident that environmental education and, more recently, education for sustainable development, has progressed more rapidly at the secondary and primary levels than within the realm of higher education.

34. Yet, higher education has an indispensable role to play. This is true both in the area of research and in the training of specialists and leaders in all fields. It is, for example, increasingly important to include appropriate materials on sustainable development in the programmes of study of journalists, engineers, managers, doctors, lawyers, scientists, economists, administrators and numerous other professions. Universities could also render a valuable service by building components of sustainable development into the special programmes for teachers, senior managers, local leaders such as mayors, parliamentarians and others in leadership positions. Universities also play a key role in international cooperation and would do so more effectively if they gave fuller consideration to the needs of scientists and social scientists from developing countries, especially as concerns interdisciplinary inquiries into environment and development issues.

XIII. Culture and sustainability

35. Culture shapes the way we perceive the world and how we interact with it. To the extent that the global crisis facing humanity is a reflection of our collective values, behaviour and lifestyles, it is, above all, a cultural crisis. For all the people of the world, culture is a very practical, concrete determinant of sustainable development. The kind of change required by sustainability at the level of community, household or individual will need to be rooted in the cultural specificity of the town or region if the people are to be supportive of and involved in such change.

36. It is in this context that education and public awareness are seen as essential to bringing about conditions conducive to sustainable development. Ethical values, such as equity, are shaped through education, in the broadest sense of the term. Education is also essential in enabling people to use their ethical values to make informed and ethical choices. Over time, education also powerfully affects cultures and societies, increasing their concern over unsustainable practices and their capacities to confront and master change. Indeed, the potential of education is enormous. Not only can it inform people, it can change them. It is not only a means for personal enlightenment, but also a means for cultural renewal. Education not only provides the scientific and technical skills required, it also provides the motivation, justification and social support for pursuing and applying them. Education increases the capacities of people to transform their visions of society into operational realities. It is for this reason that education is the primary agent of transformation towards sustainable development.

XIV. Mobilizing for action

37. While sustainability is a long-term goal for human society and a process that will necessarily need to take place over time, there is a sense of urgency to make progress quickly before time runs out. Humanity is therefore faced with a tremendous challenge, a challenge of unprecedented scope, scale and complexity. One is pressed to act even as new concepts and new methodologies are still being worked out. One is pushed to change structures and mindsets, yet there is no obvious path, no model that shows the way. Experimentation and innovation are the watchwords, as we search – often simply through trial and error – for adequate solutions. And one must do all this in a climate of sweeping economic, social and political change, while being exhorted to "do more with less".

XV. International framework for action

38. There is an internationally negotiated framework for action that has been hammered out during the series of United Nations conferences dealing with different aspects of sustainable development, beginning in 1992 with Rio (environment and development), and followed in 1994 by Cairo (population), in 1995 by Copenhagen (social development) and Beijing (women), and in 1996 by Istanbul (human settlements). Each of these conferences, as well as the three conventions on biological diversity, climate change and desertification, contain explicit recommendations or whole chapters devoted to education and public awareness. The international consensus that these agreements represent is a solid and comprehensive basis for moving forward.

39. At the heart of this new international consensus is a new vision of education, public awareness and training as the essential underpinning for sustainable development, a linchpin to support advances in other spheres, such as science, technology, legislation and production. Within the action plans, education is no longer seen as an end in itself, but as a means to:

- Bring about the changes in values, behaviour and lifestyle that are needed to achieve sustainable development, and ultimately democracy, human security and peace;
- Disseminate knowledge, know-how and skills that are needed to bring about sustainable production and consumption patterns and to improve the management of natural resources, agriculture, energy and industrial production;

- Ensure an informed populace that is prepared to support changes towards sustainability emerging from other sectors.

40. **There is an increased emphasis on integrated follow-up to these action plans. As far as education, public awareness and training are concerned, chapter 36 of Agenda 21 provides an umbrella framework for such integration.** The implementation is to be undertaken not only for international institutions such as the United Nations system, but also and most importantly by national and local entities. A range of major groups – including women, youth, farmers, parliamentarians, scientists, business and industry and others – are called upon to participate, as well as Governments and non-governmental organizations at all levels.

XVI. Action at the national level

41. **It is at this level that overall strategies for sustainable development must be given clarity and impetus and the need to integrate education into them in creative and effective ways recognized and acted upon.** This involves the national Government – which has the leadership role – major NGOs and associations, citizens groups, including corporate citizens, and educational and other specialized institutions. Also involved are the agencies and organizations of the United Nations system, which are endeavouring to work closely with national authorities in implementing the recommendations of the various international conferences that have pointed the way towards sustainable development. **The media – including the most modern and traditional ones, should also be engaged to explain the purposes and goals of programmes and in making government plans and action known to the public.**

42. **Governments should play a leading role in explaining the vision and benefits of sustainable development to the public.** They should do so through all means available, public and private. **The national school curriculum, at all levels, must incorporate the messages of sustainable development. These messages must also be emphasized in pre-service and in-service programmes of teacher training. Specialized institutions of all sorts should be actively involved.** The relationship between environmental factors and health problems, for example, should be explained by doctors, nurses and hospitals.

43. It is essential that national leaders demonstrate that there is political will to give priority to sustainable development and that they see public awareness-raising and education and training as essential means for achieving national objectives. **Government leaders have to translate the concept of sustainable development into clearly definable steps and goals. Such goals should be set for every sector. There should, for example, be a clear timetable for reorienting the education system with the necessary budget and resources to achieve the goal.** In many countries, national strategies or plans for sustainable development are instrumental in mobilizing and focusing efforts around national priorities. Similar plans also exist at the level of some regions and subregions.

44. **The civil society at all levels, especially the national, should express its support for vigorous action aimed at advancing towards sustainable development.** Organizations with specialized interests and competencies should not only support government actions, but should also monitor and assess them within their areas of competence and keep the public informed of both progress and problems. **Teachers associations, for example, should carefully assess the progress being achieved in reorienting the education system towards sustainability and should keep both their members and the public-at-large informed of the situation.**

45. **At the local level, the meaning and vision of sustainable development should be disseminated, discussed and debated in order to promote understanding and win community support. These discussions should take place in all community settings and institutions, including in schools.**

46. The need for sustainable development at the local level must be understood. Practices that are not sustainable should be identified. Possibilities for correcting them can then be discussed and explored. It is critically important that the entire community, especially women, be involved in this discussion. Women, especially in rural communities, usually play a key role in the economic as well as in the social and cultural aspects of life. **The local community and the household are important entry points for messages on sustainable development, especially for adults and out-of-school children. The schools, too, at all levels, should be actively involved in both discussions about and action to achieve sustainable development and should keep both their members and the public-at-large informed of the situation.**

Notes

[1] EPD-97/CONF.401/CLD.1; available from UNESCO in Arabic, Chinese, English, French, Portuguese and Spanish in printed form or on the Internet (http://www.unesco.org).

[2] See *Official Records of the Economic and Social Council, 1996, Supplement No. 8* (E/1996/28), chap. I, sect. C, decision 4/11.